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OUTAGE REPORT STATISTICS

Over the last three fiscal years SBC's average outage record is the nations highest. The quality of SWBT reporting when compared state to state shows a lack of concern towards problem resolution in Oklahoma to the point that you can readily see reactive performance to problems. With the other SWBT states outage reports you see a proactive posture. Compare the kind of action to reduce the occurrence of the same problem for fewer customers you quickly see the discrimination that SWBT and SBC have placed on the Oklahoma customer. When you read the claim of outstanding customer service from Oklahoma SWBT you question it.

Outage Report Numbers by fiscal year (Jul to Jun+1 yr.) and year 98 & 99.

FCC Final Outage Reports (www.fcc.gov/oet/outage/):

Fiscal Jul 97 Total reports		210	
	SBC	**45**	**21%**
	US West	31	15%
	Bell Alt	30	14%
	Bell S	19	9%
	MCI	9	4%
	AT&T	14	7%
	Sprint	12	6%
	PRTC	2	
	World Com	14	7%
	Others total	16	8%
1998 Total reports		210	
	SBC	**50**	**24% (23.8)**
	US West	40	20%
	Bell Alt	29	14%
	Bell S	21	10%
	World C	15	7%
	AT&T	11	5%
	Sprint	11	5%
	MCI	8	4%
	PRTC	7	3%
	Others total	15	
Fiscal Jul 98 Total reports		207	
	SBC	**53**	**26%**
	US West	36	17%
	Bell Alt	21	10%
	Bell S	30	14%
	MCI, W Com	20	10%
	AT&T	12	6%
	Sprint	17	8%
	PRTC	12	6%
	Others total	8	

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1999	Total reports	224	
	SBC	**40**	**18% (17.8)**
	US West	38	17% (16.9)
	Bell Alt	29	13%
	Bell S	32	14%
	AT&T	20	9%
	Sprint	22	10%
	MCI	15	7%
	PRTC	6	3%
	Others total	18	

Fiscal Jul 99	Total reports	202	
	SBC	**35**	**17%**
	US West	46	23%
	Bell Alt	37	18%
	Bell S	27	13%
	MCI	11	5%
	AT&T	16	8%
	Sprint	17	8%
	PRTC	2	
	Others total	11	5%

Fiscal year average for the last three years of the top three industry outage reporters:

SBC	**44.3**	**40%**
US West	37.6	34%
Bell Alt	29.3	26%

Fiscal year average outages of the three major long distance companies:

MCI	18
AT&T	14
Sprint	15.3
Total	**47.3**

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COMPARISONS

SWBT final Outage Reports by Number that show diverse routing as part of the solution with less customers and Central Offices impact than Oklahoma's outage of 98-189.

Base Comparison Outage Report "98-189" Nov 18th summary: 121,140 (121.1K) Customer impacts, 40 Central Offices, E911, Cellular services and LATAs.

Comparison of SWBT Outage Reports (OR) with fewer impacts than Oklahoma with diverse routing

OR #	Customer #	Central Offices	state
98- 10	35.6K	2	CA (SBC)
37	51.8K		KA
38	86.6K	38	AR
73	50.8K	9	TX
204	86.1K	4	TX
99- 111	38 K	16	TX
116	38 K	16	TX
146	64.6K	20	TX
193	52 K	29	AR
196	79.6K	10	TX
206	58 K	14	TX

Comparison of SWBT Outage Reports (OR) with CO isolation (stand alone)

OR #	Customer #	Central Offices	state
98- 15	62K	3	NV (SBC)
48	+50k	3	AR
76	38.4K	5	AR
101	39.6K	6	NV (SBC)
181	62.8K	35	MO
99- 24	60.2K	14	TX
146	64.6K	20	TX
193	52 K	29	TX
200	87.6K	8	TX

Comparison of SWBT Outage Reports (OR) with SONET rings

OR #	Customer #	Central Offices	state
98- 76	38.4K	5	AR
180	31.8K	NA	TX
99- 202	53.9K	13	MO
00- 113	77.1K	+4	MI
153	94.3K	8	WI

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Comparison of SWBT Outage Reports (OR) with 911 Tandems

OR #	Customer #	Central Offices	state
98- 181	62.8K	35	MO
204	86.1K	4	TX
99- 200	87.6K	38	TX

Comparison of SWBT Outage Reports (OR) with 911/ PSAP reroutes

OR #	Customer #	Central Offices	state
98- 38	86.6K	38	AR
73	50.8K	9	TX
99- 116	38. K	16	TX
193	52. K	29	AR
196	79.6K	10	TX
200	87.6K	8	TX

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OKLAHOMA and NON-OKLAHOMA OUTAGE REVIEW

SBC / SWBT Oklahoma Outage Reports:
98: 45, 85, 96, 104, 153, 163, 189 and 194
00: 75 and 90

1. No details that a review of "Best Practices", ATIS etc. took place.
2. Reactive at best to the problem, no proactive methods or action
3. **Diverse Systems and or routing was <u>not</u> addressed**
4. Multiple CO's fail
5. The only response to cable or fiber cuts is to the contractor.
6. More customers less diverse systems

SBC / SWBT (non Oklahoma) & PB Outage Reports:
98: 37, 38, 70, 73, 76, 90, 156, 194, 204
99: 37, 50, 138, 146,151

1. Diverse Routing and Systems listed
2. Proactive methods of action
3. CO's will isolate
4. Review the details of "Best Practices" etc.
5. Fiber cuts also include diverse routing evaluation, some times it is implemented before final report
6. Fewer customer receive better service

Network Reliability Steering Committee

Annual Report 1999

(for the year ending June 30, 1999)

Network Reliability Steering Committee

Sponsored by the Alliance for Telecommunications Industry Solutions

5.1 To the Telecommunications Industry P1-2
Leadership Message P7
Network Interconnection interoperability Forum P22

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5.2 SBC Members
Network Reliability Steering Committee P3
Facilities Solution Team P4

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To The Telecommunications Industry

This Annual Report reviews the health of the wireline telecommunications networks for the year ending June 30, 1999, as well as trends observed over the past 7 years of FCC - ordered outage reporting. These seven years have seen dramatic changes in the structure of the telecommunications industry. This report highlights two areas that have remained constant throughout these changes — the reliability of the public switched network and the commitment and dedication of the members of this industry to ensure this continued reliability.

If we were to boil the key learnings of these years of analysis down to one fundamental message, it would be this: The "best practices," developed during the first Network Reliability Council (NRC) and refined since then, do prevent outages. Service providers and their vendors must renew their commitment to ensuring that these practices are understood and applied consistently. A large – and, unfortunately, increasing - number of incidents reported each year can be traced to a failure to apply those practices.

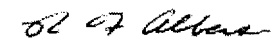
Analysis of the outage data reveals that the past 12 months (July 1998 – June 1999) were typical of recent years. Fewer outages occurred (170) than in the previous 3 years but the total was still above the Baseline year (165) by 3%. The outage index (1681), a measure of the customer impact of outages, unfortunately was the second highest in history. This fact reflects that outages in the past year have affected a larger number of customers than in previous years, a disturbing trend. Events affecting the CCS capability and Central Office Power have increased noticeably in this year while Facilities and Local Switch outages have decreased somewhat during this same period. Facilities disruptions continue to be the major cause of all outages, representing 39% of all outages during this year and 44% of the cumulative outage index. The second highest failure category, CCS outages, represents 15% of all incidents during this same period. Two observations can be made about common channel signaling. First, the deployment of CCS, and the number of networks interconnected, have increased greatly since the baseline year. Second, while the CCS failures that occurred at the start of the NRC were due to equipment problems, of late most of the failures have been due to a lack of facility diversity – a violation of Best Practices and industry standards that are of such concern.

The Network Reliability Steering Committee (NRSC) has addressed adverse trends as they have surfaced. Facilities failures have been the major cause of outages since 1992 and the NRSC's Facilities Solutions Team has spearheaded industry efforts that resulted in a new Federal One-Call law in 1998. During the past year this team has participated actively with the Department of Transportation as it works to implement the first phase of this program, defining "best practices" for effective One-Call systems. This work will continue as the focus shifts to ensuring that all states have an effective damage prevention program.

The "Best Practices" team, a Subcommittee of the FCC's Network Reliability and Interoperability Council (NRIC IV) Focus Group 3 and consisting of participants in the NRSC, has closely reviewed each outage due to CO Power during this past year. This group has concluded that the majority of these outages could have been prevented by application of existing "Best Practices." The final report from this group is contained in the NRIC IV summary report.

Deeper analysis reveals another troublesome concern. Outages attributable to "procedural errors," i.e., failures caused by missing or inadequate documentation, insufficient training, and/or insufficient supervision or control, have continued as a major root cause of all outages (46% in 1998-99). This category reflects the wisdom of Pogo—"we have met the enemy and they are us." The NRSC Procedural Errors Team, formed in early 1998, published *Procedural Outage Reduction: Addressing the Human Part* in July. This report stresses that the existing "Best Practices" are effective in preventing outages. Service providers and their suppliers are encouraged to continue sharing of knowledge about outages so that effective corrective actions may be implemented. For the future, the report emphasizes product and process improvements that focus on human factors and minimizing human involvement in an effort to reduce the incidence of outages. The report cites available documents that provide guidance for the design of equipment human interfaces and unambiguous language for maintenance instructions to minimize errors.

The telecommunications industry will continue to evolve in the new millennium, driven by boundless technological innovation, to meet the demands of sophisticated, global customers. As the threads of multiple networks bind customers together, those entrusted with building and maintaining these networks must be vigilant to ensure that these networks continue to achieve the high standards of reliability which our customers expect and deserve. The spirit of cooperation and concern demonstrated during the past year by this team of dedicated professionals, in spite of the competitive pressures in the industry, continue to be exemplary. I am proud to be associated with this team.



Raymond F. Albers
Chair

Leadership Message

Standards and operating procedures are the lifeblood of today's deregulated and competitive telecommunications industry — without them, interoperability and reliability of equipment, services and the networks would be difficult, if not impossible.

Further substantiating the importance of uniform standards and procedures are the revolutionary changes in new technologies and the resulting myriad of interoperability issues. As the expansion of industry competition, deregulation, and product diversification continues, there will be an even greater need to reach industry consensus on standards and procedures. That is why it is imperative that the industry support and protect a system of due process, equability and fairness — such as is found through the committee and forum procedures applied by the Alliance for Telecommunications Solutions, or ATIS.

ATIS Board Chairman Terry Yake and ATIS President & CEO George Edwards

ATIS is recognized as one of the world's leading developers of telecommunications standards and operating procedures. Over 3,000 representatives from the industry participate in ATIS forums and committees each year. Participants are comfortable with the ATIS procedures that provide the framework for industry harmony. They also recognize the cost effectiveness of their involvement, and see the advantages of sharing testing procedures and their own recommendations with the industry's top technology professionals. Through ATIS, the industry is successfully demonstrating how its recommendations are paving the way for the implementation of new technologies and effectively introducing exciting new products and services to the marketplace.

Membership and participation in ATIS is open to all parties involved in the provision of telecommunications services in North America, including service providers, equipment manufacturers, software developers, providers of enhanced services, and resellers. ATIS members are among the leading telecommunications companies and are recognized as such. We are pleased to report that, with the industry turning to ATIS now more than ever, the organization is receiving unprecedented acknowledgment by regulating bodies, who respect the industry's ability to regulate itself through various ATIS activities.

ATIS will continue to "set the pace" for industry consensus, in the face of continuing challenges that result from increased competition, and from new technology. As in 1998, ATIS will embrace these challenges as its members lead the way in developing new standards and guidelines for the entire industry.

We look forward to your participation.

Integrating Critical Activities

The Network Interconnection Interoperability Forum (NIIF) was established as the industry's principal forum for a wide range of issues including interconnection architecture, testing, installation and maintenance, network management, and rating and routing.

For the NIIF, 1998 was a year of changes, accomplishments, and challenges. Among the changes that occurred was a decision to move the Network Testing Committee (NTC) from a relationship in which it reported directly to the NIIF, to become a standing subcommittee under the Internetwork Interoperability Test Coordination (IITC) Committee. The movement of NTC under IITC as a subcommittee more closely aligns various internetwork testing activities presently conducted by all ATIS industry committees and forums.

1998 NIIF highlights

Network Management Committee

Activities of the NIIF's Network Management Committee (NM) in 1998 are as follows:

- In an effort to assist new carriers in becoming good interconnecting partners, the committee established a minimum set of network management controls. This set of controls will enable a carrier to control network-impacting events such as focused overloads, cable cuts, and equipment failures.
- Also, in response to a concern over the impact of media-stimulated mass calling events (e.g., radio contests, polls, etc.) in the network, the National Association of Broadcasters (NAB) was provided with information to share with its membership. The NAB information highlights network impact concerns and proposes actions that NAB members can take to provide advanced notification to telecommunications providers of impending mass calling events.
- The committee addressed the issue of informing the public about CIC/CAC expansion by crafting words for an announcement to be played when a customer dials too few digits when attempting to access an alternate carrier. The committee took extra care to address all scenarios that may be encountered, to avoid misdirecting the customer.
- NM updated the NIIF Reference Document Part V & VI/Testline Guidelines in an effort to keep the information current in the face of evolving technology and network complexities.

A remaining challenge is the completion of a document to be used as a template for interconnection discussions between service providers. This work was started as a result of a referral from the Network Reliability and Interoperability Council (NRIC). When completed, the templates document can be used as a guide for Incumbent Local Exchange Carrier (ILEC) and Competitive Local Exchange Carrier (CLEC) entities to interconnect to and provide service. It is expected that work on this should be completed early in 1999.

Network Interconnection Architecture Committee

The 1998 highlights of the Network Interconnection Architecture Committee (NIA) are:

- The committee recommended a technical solution to support recovery of NPAs (866/899) utilized for non-dialable toll points. Implementation of this recommendation would result in recovering significant numbering resources to aid in staving off the exhaust of North American Numbering Plan (NANP) number resources.
- The committee agreed that, where technically feasible, signaling for all internetwork calls to a ten digit telephone number should always be sent or received using ten digits for the called party number, independent of how the call is dialed.
- NIA recommended that the Industry Numbering Committee's (INC's) Local Number Portability (LNP) Assignment Practices be modified to explicitly state that telephone numbers should not be simultaneously assigned as both an LRN and a working telephone number.
- NIA updated its "Recommended Notification Procedures to Industry for Changes in Access Network Architecture" document, to reflect the current industry environment.

NIIF Moderator
Ron Havens
Sprint-LDD

NETWORK RELIABILITY STEERING COMMITTEE

Ray Albers — Chair
Bell Atlantic

P.J. Aduskevicz — Vice-Chair
AT&T

Mike Posch
Ameritech

Ed Ballington
BellSouth

Cellular Telecommunications Industry Association

Kathleen O'Reilly
Consumer Representative

Communications Workers of America

Richard Round
GTE

Brian Moir
International Communications Association

Karl Rauscher
Lucent Technologies

Dale Barr
National Communications System

Clyde Miller
Nortel Networks

Bettie Wilson
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Telcordia Technologies

Pat Wood, III
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U S WEST

Norb Lucash
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Bill Klein *	*ATIS*
Mahmound Daneshand	*AT&T*
Rick Canaday	*AT&T*
Wayne Chiles	*Bell Atlantic*
Whitey Thayer	*FCC*
Karl Rauscher	*Lucent Technologies*
Jerry Usry	*Sprint*
Jay Bennett	*Telcordia Technologies*
John Healy	*Telcordia Technologies*
Spilios Makris	*Telcordia Technologies*

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Mike Posch	*Ameritech*
Bill Klein	*ATIS*
P.J. Aduskevicz*	*AT&T*
Rick Canaday	*AT&T*
Ray Albers	*Bell Atlantic*
Scott Taylor	*BellSouth*
Wayne Chiles	*Bell Atlantic*
Whitey Thayer	*FCC*
Richard Round	*GTE*
Karl Rauscher	*Lucent Technologies*
Clyde Miller	*Nortel*
Jerry Usry	*Sprint*
John Healy	*Telcordia Technologies*
Spilios Makris	*Telcordia Technologies*

*Chair

FACILITIES SOLUTION TEAM

Stu Megaw	*AGCA*
Carolyn Gatov	*Ameritech*
Janice Gambill	*Ameritech*
Alice Borrelli	*AT&T*
Rick Canaday	*AT&T*
Tim Brubaker	*AT&T*
Griff Goad	*BellSouth*
Mike McCrary	*BellSouth*
Paul Cloran	*Bell Atlantic*
Wayne Chiles	*Bell Atlantic*
Don Brown	*CNA Insurance*
Mary Jo Cooney	*DOT*
Bill Busch	*Dow Chemical*
Jim Swain	*GTE*
Catherine Carver	*NC State*
Bill Hillman	*NUCA*
William Harley	*NUCA*
Craig Sewell	*NULCA*
Mike Homick	*PEPCO/CEC*
Jerry Yim	*SBC*
Glen Cantrell	*SBC*
Raul Bernal	*SBC*
Roger Stepp	*SBC*
Jim Anspach	*So-Deep, Inc.*
Jim Gebel	*Sprint*
Dennis Henry	*Telcordia Technologies*
Jay Bennett	*Telcordia Technologies*
John Healy*	*Telcordia Technologies*
John Rosenberger	*Telcordia Technologies*
Paul Devaney	*Telcordia Technologies*
Spilios Makris	*Telcordia Technologies*
Pat Kirchberg	*U S West*

*Chair

SONET

IN THIS SECTION

SONET

RELATED LINKS

Synchronous Optical NETwork, or SONET, is a fiber-based technology operating deep inside of SBC's network, helping to ensure 99.999 percent reliability. The primary interface for a wide range of communications services, SONET eliminates the need for proprietary systems through its open standardized structure.

SONET works in the network backbone by transmitting information in high volumes and at high speeds. Voice, data and video can travel at a rate ranging from dozens of megabits per second to 2.5 gigabits per second.

SONET technology is deployed through SBC's Southwestern Bell, Ameritech, Pacific Bell, and SNET brands.

SONET also brings the following essential elements to the network:

- SONET's "self-healing" fiber ring architecture provides uninterrupted service in the event of line failures or network damage.
- SONET enables simplified maintenance through built-in signaling links used for network monitoring.
- As a backbone technology, SONET enables the aggregation of several communications services using the same fiber-based platform.

SBC is an industry leader in the deployment of SONET, with nearly 10,000 rings in place throughout our territory.

Nov. 6, 2000

OKLAHOMA CHAINED CO OUTAGES

SBC / SWBT Oklahoma Outage Reports:

98-45

98-96

98-163

98-189

00-75

00-90